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# FRBSF WEEKLY LETTER

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## The Slow Recovery

The real gross domestic product (GDP) declined from the second quarter of 1990 through the first quarter of 1991. Although the U.S. has had positive GDP growth since then, a lot of people find it hard to label this period an unqualified recovery. Certainly it is not like the typical recovery: in the last four recoveries real GDP has been up 5.8 percent, on average, after five quarters, but this time it has increased only 2.0 percent. Hence, this recovery has been described as "anemic," "fragile," or "weak"—words usually associated with sickroom reports.

What is behind this performance? Why is this recovery different from others? This Weekly Letter analyzes the recovery in terms of a structural economic model in order to identify the sectors of the economy where the weakness has been the greatest and then suggests some of the implications for the economic outlook.

### Framework of analysis

Like all structural economic models, the model discussed here has some exogenous, or predetermined, variables and other variables that are endogenous, or dependent upon the operation of the system as a whole (for details, see Throop 1989). The most important exogenous variables in the model are monetary policy, fiscal policy, and the population. Foreign real GDP also is treated as exogenous, even though it is influenced by U.S. real GDP through the U.S. demand for imports. Examples of the endogenous variables are income, consumption spending, investment spending, exports, and imports. Any change in the exogenous variables influences the GDP indirectly through the endogenous variables, as well as perhaps directly. For example, a change in government spending affects GDP indirectly through income and consumption, as well as directly. Because endogenous variables are influenced by exogenous variables, gross movements in the endogenous variables themselves are not a good guide to the ultimate causes of movements in GDP. For example, weak consumption spending would not be an

underlying cause of weak GDP growth if it had been generated by weak income growth that was, in turn, due to a decline in some exogenous variable like government spending.

We therefore account for the ultimate sources of real GDP growth by decomposing it into two parts. The first part is the portion caused by changes in the exogenous variables. The second part is the portion due to departures of the endogenous variables from their normal relationships to the exogenous variables. This second part is measured by changes in the "errors" (that is, differences between actual and predicted values) of the model equations that explain the endogenous variables. Although this approach by itself does not provide reasons for errors in predicting the endogenous variables, it at least allows us to distinguish between the effects of policy variables, other exogenous variables, and any unusual behavior of the endogenous variables. This information may provide clues as to the underlying causes of the recent slow economic growth.

### Exogenous variables

Looking first at monetary policy, we find that the decline in short-term interest rates has been at least as large as the average of previous recoveries. Before the recent trough in economic activity, short-term interest rates as measured by the federal funds rate fell less than they did in earlier cycles. But since then they have declined by more.

Other exogenous variables have contributed to the slowness of the recovery, however. First, the adult population has grown by 1.2 percent in this recovery, compared with 2.3 percent, on average, over the same time period in previous recoveries. Lower population growth affects the size of the trend against which the cyclical expansion should be measured (see Trehan 1992). The reduction in the growth of labor input reduced the trend in the growth of output by 0.7 percentage point.

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A second exogenous factor that has slowed growth in the current recovery is federal fiscal policy. Real federal purchases of goods and services declined by 0.4 percent of the trough real GDP in the current recovery, primarily due to cutbacks in defense spending, whereas in past recoveries federal purchases changed very little. Since federal taxes net of transfer payments measured on a high employment basis changed about as much as in previous recoveries, federal fiscal policy as a whole had a net contractionary effect on total spending compared with previous recoveries. In addition to the direct effect of federal spending in GDP, there were secondary effects on consumption and investment due to lower incomes.

Yet another factor that has reduced real GDP growth in the current recovery is foreign real GDP, which has grown at only half the rate of previous recoveries. Since the recent trough, real GDP in our trading partners has grown by only 2.7 percent compared with 5.6 percent average growth in past recoveries. It is estimated that this reduced U.S. exports by 0.5 percent of the trough GDP, with further secondary effects on income, consumption, and investment. Although a portion of the slow growth in foreign real GDP was simply a response to slower U.S. growth, the largest part probably was not.

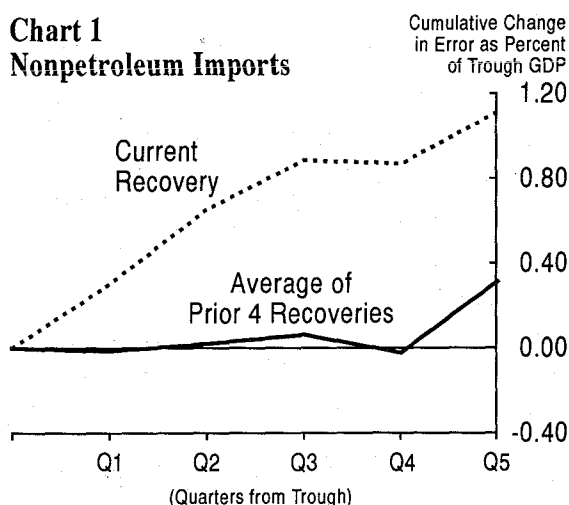
## Endogenous variables

Turning to the endogenous variables, the relationship of total consumption expenditures to income and wealth has not differed much from previous recoveries. While consumer sentiment dropped precipitously in the fourth quarter of last year and temporarily reduced consumer spending, apparently in response to a spate of bad news in the media, by the spring it was on track once again with economic fundamentals and so did not depress the growth of consumer expenditures over the whole recovery to date.

Residential investment also does not appear to be a source of the problem. It has grown somewhat faster than predicted by population, incomes, interest rates and the existing stock of housing than in previous recoveries. Nonresidential investment, however, has grown more slowly than predicted by final sales, the cost of capital, and the stock of equipment and structures.

The endogenous variables with the most significant effects on real GDP compared with past recoveries are imports and inventory investment. Nonpetroleum imports have grown by 12 percent in real terms in the current recovery. But on the basis of past relationships with U.S. GDP and the dollar, we would have expected them to grow by only 3 percent. In past recoveries, nonpetroleum imports have behaved normally in relation to U.S. GDP and the dollar. But in the current recovery the growing "error" in nonpetroleum imports relative to that in previous recoveries directly reduced the demand for U.S. output by 0.8 percent of the trough GDP (Chart 1). Significantly, no similar error emerged in the model's equation for exports in either the current recovery or earlier ones.

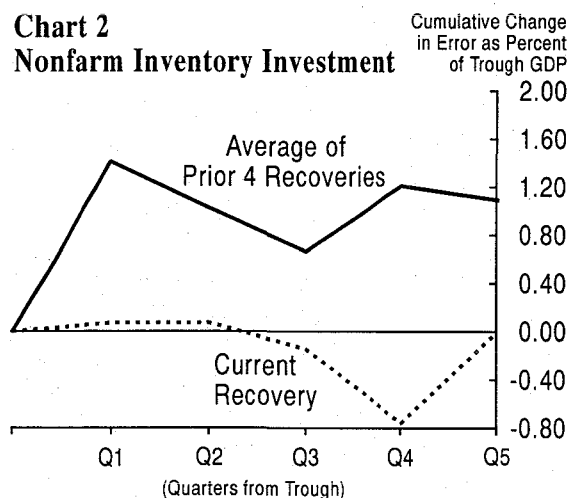
**Chart 1**  
**Nonpetroleum Imports**



An even bigger source of slow growth has been relatively weak inventory investment (Chart 2). The model contains a standard equation for inventory investment, in which this investment is explained by the *current* level of sales and the existing stock of inventories. This equation tracks inventory investment reasonably well when growth is stable. But in the early phases of recovery when expected sales tend to exceed current sales, inventory investment is usually stronger than predicted by the model. The pattern in the current recovery is strikingly different, however. Nonfarm inventory investment has been about the same as the model's predictions, and thus weaker than is typical at this phase of

the cycle. Possible explanations are that business confidence has suffered for lack of clear evidence of a strong recovery and that new management techniques have allowed inventories to be kept under relatively tight control. The difference between the current error and the average error at this stage of previous recoveries is equal to 1.1 percent of the trough real GDP.

**Chart 2**  
**Nonfarm Inventory Investment**



### Conclusion

The sources of the slow recovery are several. Lower population growth has diminished the growth potential of the economy somewhat; and federal fiscal policy, foreign GDP growth, stronger imports, and subdued inventory investment all have diminished growth in demand relative to previous recoveries.

Looking to the future, cutbacks in defense spending that are contributing to a restrictive fiscal policy are likely to continue. Foreign GDP growth is picking up and boosting the rate of export growth, but not to the same extent as in the past. Import growth has begun to slow to the pace of past recoveries. But inventory investment likely will continue to expand no faster than sales. This adds up to a moderately stronger recovery than we have seen so far.

In addition, significant effects from monetary policy are still in the pipeline. Short-term interest rates are now at their lowest levels since the 1960s, and the gap between long-term rates and short-term rates is still quite wide. It takes time for the financial markets to alter their expectations of future short rates, and for long-term rates to move more closely into line with current short-term rates. But that process will continue. As it does, both nominal and real long-term interest rates can be expected to decline further, contributing to a more vigorous recovery than seen heretofore.

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### References

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